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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,991	07/12/2006	Hendrik Anne Mol	1019219-000028	7200
	7590 11/16/200 INGERSOLL & ROO	EXAMINER		
POST OFFICE	BOX 1404	DAVIS, OCTAVIA L		
ALEXANDRIA, VA 22313-1404			ART UNIT	PAPER NUMBER
		2855		
			NOTIFICATION DATE	DELIVERY MODE
		11/16/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com debra.hawkins@bipc.com

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	Application No.	Applicant(s)				
Office Action Commons	10/564,991	MOL ET AL.				
Office Action Summary	Examiner	Art Unit				
	Octavia Davis	2855				
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).						
Status						
 Responsive to communication(s) filed on This action is FINAL. 2b) This action is non-final. Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. 						
Disposition of Claims						
4) ☐ Claim(s) 1-20 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1,2,8-10 and 16 is/are rejected. 7) ☐ Claim(s) 3-7,11-15 and 17-20 is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or election requirement. Application Papers 9) ☐ The specification is objected to by the Examiner.						
10) ☐ The drawing(s) filed on 18 January 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.						
Priority under 35 U.S.C. § 119						
 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 						
Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 1/18/06.	4) Interview Summary Paper No(s)/Mail Da 5) Notice of Informal Pa	ite				

DETAILED ACTION

Acknowledgment is made of applicant's preliminary amendment filed 1/18/06.

Claim Rejections - 35 USC § 112

- 1. The following is a quotation of the first paragraph of 35 U.S.C. 112:
 - The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
- 2. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In the disclosure, the neural network processing is described as using the measurement signals of the sensors as input signals and does not use the inverse transformation of a finite element analysis model as described in claim 1.

Claim Rejections - 35 USC § 102

- 3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 8 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Rhodes et al (5,952,587).

Regarding claims 1 and 8, Rhodes et al disclose an imbedded bearing life and load monitor comprising receiving sensor signals from a plurality of sensors 44 that measure performance characteristics of a rolling element bearing 34, processing the received sensor signals to determine a contact force vector, wherein the plurality of sensors are arranged to measure a bearing component deformation and the processing of the received sensor signals comprises determining the contact force or load vector using an inverse transformations of a finite element analysis model which describes the rolling element bearing (See Col. 7, lines 9 - 10 and 13 - 26).

Regarding claims 2 and 16, the finite element analysis model is simplified using at least one generalized mode shape, the at least one generalized mode shape being a mathematical description of a natural mode deformation of a component of the rolling element bearing such as the inner 40 or outer ring 38 (See Col. 7, lines 12 – 15 and Col. 10, lines 12 - 25).

Claim Rejections - 35 USC § 103

- 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes et al (5,952,587) in view of Aoki et al (7,249,891).

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Regarding claim 9, Rhodes et al disclose all of the limitations of these claims except that the processing means comprises a neural network that is trained to provide the contact force vector. However, it would have been obvious to incorporate a neural network since these are well known types of processing devices that accept inputs, performs a series of operations on the inputs and produces outputs (See KSR, 82USPQ2d, 1385 (2007)).

Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes et al (5,952,587) in view of Aoki et al (7,249,891).

Regarding claim 10, Rhodes et al disclose all of the limitations of these claims except that the bearing inner ring or the outer ring are attached to a sensor holder and a circumferential recession provided between part of the contacting surfaces of the inner or outer ring and the sensor holder. However, Aoki et al disclose a bearing device with a sensor and a roller bearing with a sensor comprising an inner ring 12, an outer ring 13 that are attached to a sensor holder 121 and a circumferential recession 126d located between the ring and the sensor holder (See Col. 13, lines 31 – 40 and Col. 14, lines 22 – 28, See Fig. 9).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rhodes et al according to the teachings of Aoki et al for the purpose of, advantageously providing a sensor bearing the enables high productivity and cost saving effect (See Aoki et al, Col. 4, lines 12 - 23).

Allowable Subject Matter

9. Claims 3-7, 11-15 and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Browner et al (6,571,632) disclose a method and apparatus to provide dynamic ultrasonic measurement of rolling element bearing parameters.

McDearmon (7,240,570) discloses a load sensing bearing.

McDearmon (RE39,838) discloses a bearing assembly with sensors for monitoring loads.

French et al (6,535,135) disclose a bearing with a wireless self-powered sensor unit.

Bailey et al (6,687,623) disclose a real time bearing load sensor.

Ito (6,916,118) discloses a rolling bearing with a rotation sensor.

Huang et al (5,566,273) disclose supervised training of a neural network.

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11. Any inquiry concerning this communication or earlier communications from the examiner

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should be directed to Octavia Davis whose telephone number is 571-272-2176. The examiner can

normally be reached on Mon through Fri from 9 to 5. The examiner can also be reached on

alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Edward Lefkowitz, can be reached on 571-272-2180. The fax phone number for the organization

where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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